

CLAIMS

1. A closed type device for cell culture comprising: an incubator means for culturing cells, a heat insulation box means in which the incubator means is disposed in the state suitable for culture and which keeps the incubator means at a given temperature, a driving means for rotatively moving the incubator means in the heat insulation box means, a medicine supply means for supplying a new medicine to the incubator means in the heat insulation box means from the outside of the heat insulation box means, a wastewater discharge means for discharging unnecessary wastewater to the outside of the heat insulation box means from the incubator means in the heat insulation box means, and a culture state observing means for observing the state of culture of cells in the incubator means in the heat insulation box means from the outside of the heat insulation box means.
2. A device for cell culture according to claim 1, wherein a pump, a valve and a flexible tubular member are provided between the incubator means and the medicine supply means to carry out supply, culture and recover of the cells.
3. A device for cell culture according to claim 1, wherein the incubator means is a vessel having a smooth central part and comprising a transparent and nontoxic material.
4. A device for cell culture according to claim

3, wherein the transparent and nontoxic material is polystyrene or polyethylene terephthalate.

5. A device for cell culture according to claim 1, wherein the culture state observing means is provided with a camera.

6. A device for cell culture according to claim 5 which is provided with a camera moving means which allows the camera to scan all over the surface of the incubator means and which can set the point in the cell incubator means in the direction of optical axis.

7. A device for cell culture according to claim 6 which is provided with a memory means which memorizes the photographing position of the camera on the incubator means and in which the camera moving means reproduces the same photographing position as memorized in the memory means.

8. A device for cell culture according to any one of claims 1, 2 and 5 wherein a thin tube the outside of which is sealed with a blocking member is provided, the thin tube is a cell supply opening or a cell recovery opening, a vessel for storing cells is provided, a bactericide-impregnated member is provided in the upper part of the vessel, and the thin tube is thrust through the bactericide-impregnated membrane and thereafter inserted into the vessel.

9. A device for cell culture according to claim 2, wherein a gas bomb is provided for supplying an atmosphere to the heat insulation box means, and the

valve is opened and closed using the gas pressure of the gas bomb as a driving source.

10. A device for cell culture according to claim 2 which has a medicine amount determining means which determines, by the operation time of the pump, the amount of medicine supplied to the incubator means from the medicine supply means.

11. A device for cell culture according to claim 1, wherein the wastewater discharge means comprises a flexible tubular member, a pump and a wastewater tank and one of them is provided with a pH measuring part.

12. A device for cell culture according to claim 11, wherein the pH measuring part has a material which changes in color with change of pH and a light receptor element which reads the color of the material.

13. A device for cell culture according to claim 2 which is provided with a control means which memorizes the timing and content of supply of cells, rotational movement of the incubator, supply of medicine, and supply and recovery of the wastewater and cells to perform these culturing steps of cells.

14. A device for cell culture according to claim 13 wherein the control means has an interface which exchanges culture information with other control means in the case of operating the device for cell culture a plurality of times.